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(12) UK Patent Application (19) GB (11) 2 297 414 (13) A

(43) Date of A Publication 31.07.1996

(21) Application No 9501791.9

(22) Date of Filing 25.01.1995

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(51) INT CL⁶
G07G 1/12

(52) UK CL (Edition O)
G4T TBA

(56) Documents Cited
GB 2152723 A GB 2041596 A EP 0180978 A2
US 5202826 A US 4744097 A US 4425619 A

(58) Field of Search
UK CL (Edition N) G4T TBA TBX
INT CL⁶ G07G 1/12 1/14
ONLINE : WPI

(54) Point of sale system

(57) A device for use with a point of sale system comprises a receiver 5 for capturing transaction information transmitted from a point of sale unit 1, a memory unit 7 to receive and store the transaction information, and a transmitter 9 to transmit captured transaction information to a peripheral device, eg a printer 2. The device may also include an authentication code generator 8 which sends a signal to an inhibitor 11 which controls functioning of the point of sale unit 1. The authentication code is also printed on a receipt by the printer 2. The unit 7 may be a non-volatile memory and may transmit transaction information to a central computer 13.

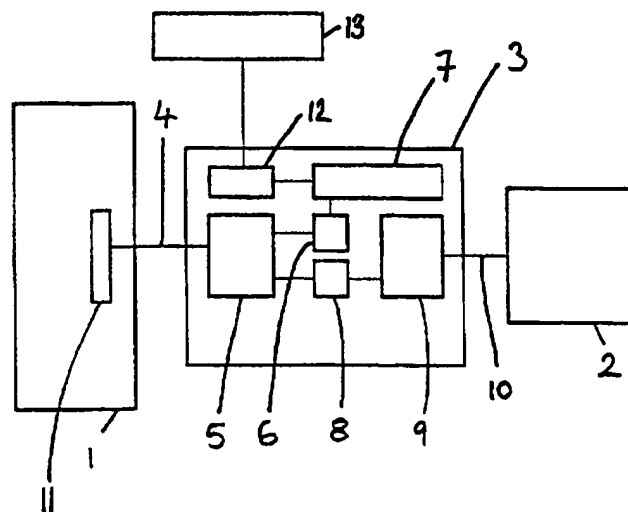


Figure 2

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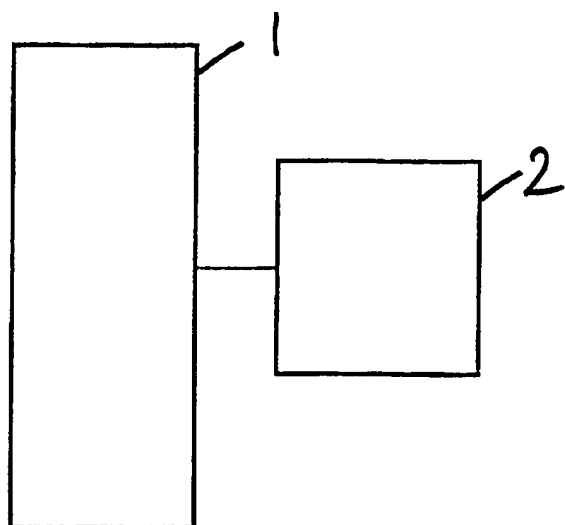


Figure 1

PRIOR ART

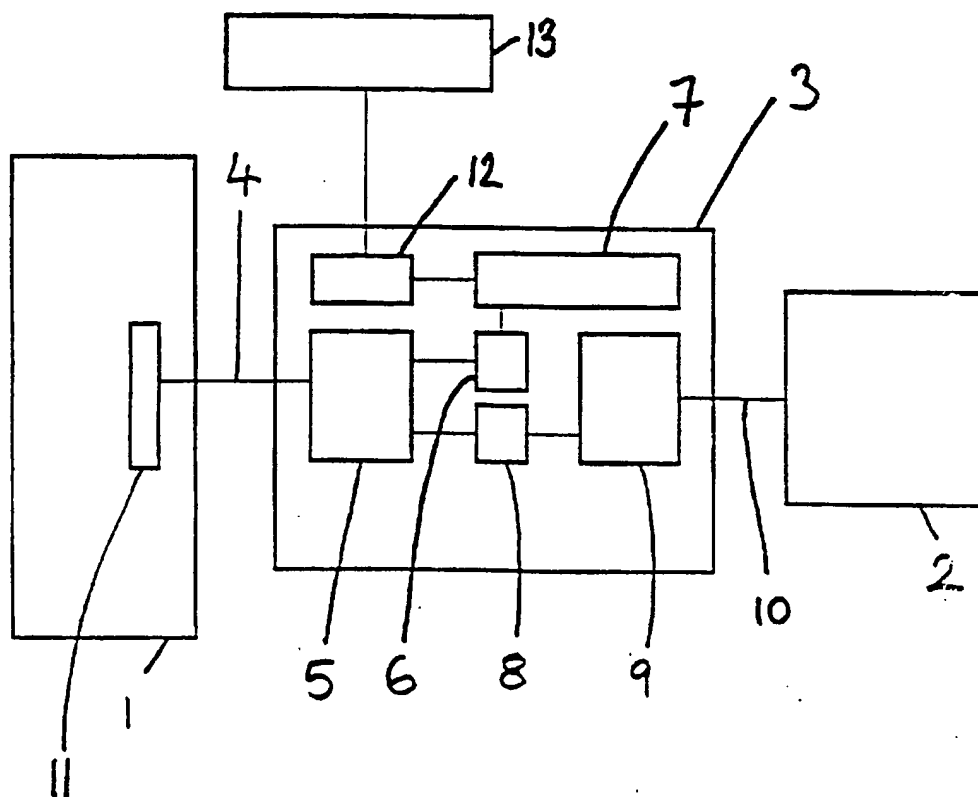


Figure 2

PATENTS ACT 1977

"A device for use with point of sale equipment"

THIS INVENTION relates to a device for use with point of sale equipment and more particularly to a device for use with point of sale equipment for recording point of sale transactions.

A point of sale unit comprises an electronic cash register or till or a personal computer and till configured to operate as a cash register or till. The point of sale unit is used by an operator who enters details of a transaction with a customer into the point of sale unit, takes payment for the transaction from the customer and provides the customer with the necessary change from the point of sale till.

Typically, the point of sale unit is provided with a display to provide a temporary visual record and confirmation of transactions and a printer to provide a hard copy record of the transaction for the customer. A copy of the receipt is also usually retained by the point of sale printer for records purposes.

Besides printing a customer's receipt, some point of sale printers also print a journal which is a record of transactions executed at the point of sale. In some countries, such a journal is a legal requirement. A journal may be used by the retail management to monitor sales, or by the national taxation body for tax assessment purposes.

The use of such a printer has various disadvantages in that the journal printer may run out of paper or ink,

the paper in the printer may become jammed and the print-out of the journal may be difficult to read.

Further, it is possible to tamper with the printer or the point of sale unit to prevent some transactions from being recorded on the printer.

It is an object of the present invention to provide a device for use with point of sale equipment which seeks to solve the above mentioned problems.

Accordingly, the present invention provides a device for use with a point of sale system, which device comprises: a receiver for capturing transaction information transmitted from a point of sale unit; a memory unit to receive and store the transaction information; and a transmitter to transmit captured transaction information to a peripheral device.

Preferably, the device is provided in combination with a point of sale unit and a peripheral device, the device being in data communication with the point of sale unit and the peripheral device.

Conveniently, the device is provided with an authentication code generator to produce an authentication code for transmittal with the captured transaction to the peripheral device to establish a record of the transaction on the peripheral device, which record includes the authentication code, thereby providing confirmation that the device was in data communication with the peripheral device at the time at which the record was established, the authentication code generator also producing an enable signal and transmitting the enable signal to an inhibitor unit provided in or associated with the point of sale unit,

the inhibitor unit being operable to enable operation of the point of sale unit when the signal is being received and to disable operation of the point of sale unit when the signal is not received.

In order that the present invention may be more readily understood, embodiments thereof will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a schematic representation of an existing point of sale system; and

Figure 2 is a schematic representation of a point of sale system provided with a device embodying the present invention.

Referring to Figure 1, a point of sale unit 1 is shown connected to a point of sale printer 2. The point of sale unit 1 provides the point of sale printer 2 with information concerning a transaction and the point of sale printer 2 prints a receipt for the customer providing a hard copy record for the customer of the transaction. The point of sale printer 2 also usually prints another copy of the transaction which is stored within the printer 2. The printer 2 may also be requested by the point of sale unit 1 to produce a journal of the transactions which have occurred at that point of sale unit 1 over a given time period, for example, one day's trading.

Referring to Figure 2, a device 3 embodying the present invention is interposed between the point of sale unit 1 and the point of sale printer 2. A communication link 4 is provided between the point of sale unit 1 and the point of sale printer 2, which communication link 4 is

routed through the device 3 embodying the present invention.

The device 3 embodying the present invention is connected to the point of sale unit 1 by the communication link 4 over which transaction information is sent by the point of sale unit 1 to a signal receiver 5 housed in the device 3, which signal receiver 5 captures the transaction information. Preferably, the signal receiver 5 is provided with a memory buffer (not shown) which subsequently provides the transaction information to an encrypter unit 6. The encrypter unit 6 encrypts the transaction information which is then stored in a write-once non-volatile memory 7.

The signal receiver 5 also delivers the transaction information via an authentication code generator 8 to a signal transmitter 9. The signal transmitter 9 is connected to the point of sale printer 2 by a single communication line 10 which comprises part of the communication link 4 between the point of sale unit 1 and the point of sale printer 2. The information transmitted over the transmission line 10 not only includes the transaction information but also includes a code which has been generated by the authentication code generator 8. The authentication code is printed on the receipt along with the transaction information. The authentication code printed on the receipt indicates that the device 3 embodying the present invention is connected to the printer 2. The code cannot be easily copied.

The authentication code generator 8 also provides a signal to a point of sale inhibitor 11 located within the point of sale unit 1. Unless this predetermined signal is received by the point of sale inhibitor 11, the point of

sale unit 1 will be prevented from functioning by the point of sale inhibitor 11. When the signal from the authentication code generator 8 is being received by the point of sale inhibitor 11, the point of sale unit 1 functions normally.

Preferably, the device 3 is provided with a remote communication interface 12 which is connected to the memory 7. The remote communication interface 12 can establish communication with a remote device such as a central computer 13 at a head office or central location to enable the central computer 13 to interrogate the memory 7 of the device 3. Such communication can be established automatically by the device 3 at predetermined times or can be requested by the central computer 13.

A casing of the device 3 is provided with a lead seal (not shown) to render the device tamper proof. Any unauthorised attempt to open the casing of the device 3 results in self destruction of the device circuitry, which circuitry comprises customised integrated circuits which are used to prevent the product being copied.

Because the memory 7 is provided as a write-once non-volatile memory, the data stored therein cannot be altered. Sufficient memory capacity is provided to retain transaction information for up to five years.

Communication with the central computer 13 may be by way of a public switching telephone network, a lease line, an ISDN line or by wireless communication. The communication link established by the remote communication interface 12 may also be configured to transfer data to the device 3, as well as to interrogate the device 3.

In one example, the central computer 13 comprises the central computer of a national taxation department, the taxation department utilising the communication link to interrogate the device 3 for tax assessment purposes.

CLAIMS:

1. A device for use with a point of sale system, which device comprises: a receiver for capturing transaction information transmitted from a point of sale unit; a memory unit to receive and store the transaction information; and a transmitter to transmit captured transaction information to a peripheral device.
2. A device according to Claim 1, wherein an encrypter is provided to encrypt captured transaction information for storage in the memory.
3. A device according to Claim 1 or 2, wherein the memory is a write-once non-volatile memory.
4. A device according to any preceding claim, wherein a remote communication link is provided to enable communication between the device and a remote station.
5. A device according to Claim 4, wherein the device transmits stored information over the communication link to a central control computer.
6. A device according to any preceding claim, wherein the device is provided with a tamper-proof seal.
7. A point of sale system comprising a device according to any preceding claim in combination with a point of sale unit and a peripheral device, the device being in data communication with the point of sale unit and the peripheral device.
8. A point of sale system according to Claim 7, wherein the device is provided with an authentication code

generator to produce an authentication code for transmittal with the captured transaction information to the peripheral device to establish a record of the transaction on the peripheral device, which record includes the authentication code, thereby providing confirmation that the device was in data communication with the peripheral device at the time at which the record was established.

9. A point of sale system according to Claim 7, wherein the device is provided with an authentication code generator to produce an enable signal and to transmit the enable signal to an inhibitor unit provided in or associated with the point of sale unit, the inhibitor unit being operable to enable operation of the point of sale unit when the enable signal is being received and to disable the point of sale unit when the signal is not received.

10. A point of sale system according to Claim 7, wherein the device is provided with an authentication code generator to produce an authentication code for transmittal with the captured transaction to the peripheral device to establish a record of the transaction on the peripheral device, which record includes the authentication code, thereby providing confirmation that the device was in data communication with the peripheral device at the time at which the record was established, the authentication code generator also producing an enable signal and transmitting the enable signal to an inhibitor unit provided in or associated with the point of sale unit, the inhibitor unit being operable to enable operation of the point of sale unit when the signal is being received and to disable operation of the point of sale unit when the signal is not received.

11. A point of sale system according to any one of Claims 7 to 10, wherein the peripheral device is a printer.

12. A device substantially as hereinbefore described with reference to and as shown in Figure 2 of the accompanying drawings.

13. A point of sale system substantially as hereinbefore described with reference to and as shown in Figure 2 of the accompanying drawings.

14. Any novel feature or combination of features disclosed herein.



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The Patent Office

Application No: GB 9501791.9
Claims searched: 1 to 13

Examiner: Mr.G.Nicholls
Date of search: 6 April 1995

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.N): G4T (TBA TBX)
Int Cl (Ed.6): G07G 1/12 1/14
Other: ONLINE : WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2152723 A (SHARP K.K.) Devices MA and M all appear to meet terms of claim 1	1,4,7,11
X	GB 2041596 A (CASIO) Whole document	1,2,7,8
X	EP 0180978 A2 (SHARP K.K.) Whole document	1,2,3,7,8,11
X	US 5202826 (McCARTHY) Whole document	1,2,4,7,8,11
X	US 4744097 (HARUHARA) Whole document	1,2,4,7,8,11
X	US 4425619 (MATSUDA) Whole document	1,7,11

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
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